

# JAPAN

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JIS S 0022 (2001) (English): Guidelines for all people including elderly and people with disabilities -- Packaging and receptacles -- Test methods for opening

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*The citizens of a nation must  
honor the laws of the land.*

Fukuzawa Yukichi

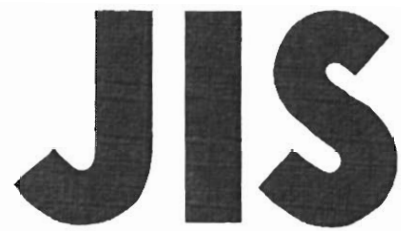
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JAPANESE  
INDUSTRIAL  
STANDARD

Translated and Published by  
Japanese Standards Association

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**JIS S 0022** : 2001

**Guidelines for all people  
including elderly and people  
with disabilities—  
Packaging and receptacles—  
Test methods for opening**

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ICS 11.180; 55.020

Reference number : JIS S 0022 : 2001 (E)

## **Foreword**

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

Date of Establishment: 2001-11-20

Date of Public Notice in Official Gazette: 2001-11-20

Investigated by: Japanese Industrial Standards Committee  
Standards Board  
Technical Committee on Consumer Life  
Products

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JIS S 0022:2001, First English edition published in 2002-04

Translated and published by: Japanese Standards Association  
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

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Printed in Japan

## **Guidelines for all people including elderly and people with disabilities— Packaging and receptacles— Test methods for opening**

**Introduction** A voice is heard from the elderly people whose grasping power is weakened about the difficulty in opening the packages and receptacles used for foods and miscellaneous goods for daily use. In response to this appeal, this Standard specifies the test methods for opening for the assessment of the openability of packaging and receptacles.

**1 Scope** This Japanese Industrial Standard specifies the test methods for opening of packaging and receptacles (including bags) of consumer products specified in **JIS S 0021** and used by all people including elderly people whose grasping power is weakened.

**2 Normative references** The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS S 0021 *Guidelines for all people including elderly and people with disabilities—Packaging and receptacles*

JIS Z 8401 *Guide to the rounding of numbers*

**3 Definitions** For the purposes of this Standard the following definitions apply:

- a) **tongue** A knob forming a part of heat-sealed semi-rigid receptacle or paper receptacle for the purpose that, by pulling it up by finger tip, the receptacle can be opened.
- b) **notch** A section made by cutting away a part of the periphery of film receptacle.
- c) **pull-tab receptacle** A receptacle which can be opened by pulling the ring installed on the upper or side part of the receptacle by finger. Generic term for full-open tab receptacle, stay-on tab receptacle and tab-attached cover receptacle.
- d) **full-open tab receptacle** A receptacle the upper part of which is opened entirely by pulling up the tab.
- e) **stay-on tab receptacle** A receptacle used with the tab retained after it has been pulled up to open.

**4 Classification of receptacles according to opening system** The receptacles are classified according to the opening system, as follows:

- a) **Heat-sealed flexible packaging bag**
- b) **Heat-sealed semi-rigid receptacle**

- c) **Screw top receptacle**
- d) **Pull-tab receptacle**
- e) **Roof type carton receptacle**

**5 General condition of test** The condition at the testing place is  $23 \pm 2$  °C in temperature and  $(50 \pm 10)$  % in relative humidity and, in advance of the test, the test sample is equilibrated with this condition. If other particular conditioning than the above is required, it may be carried out in accordance with the agreement between the parties concerned and it shall be clearly described in the test report.

## **6 Test methods for opening**

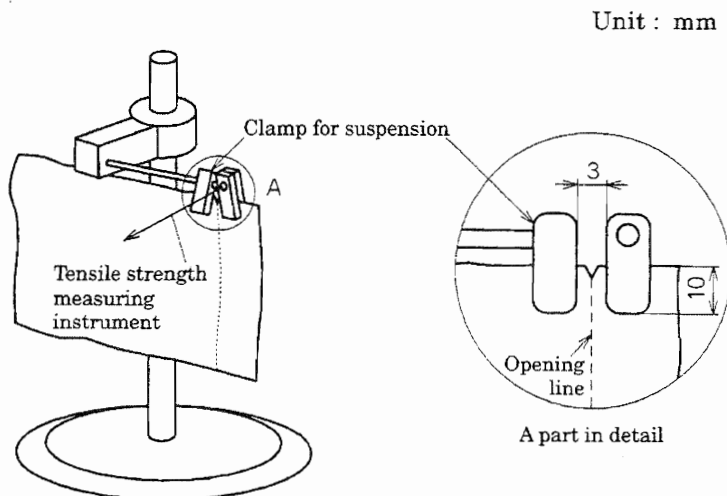
### **6.1 Heat-sealed flexible packaging bag**

**6.1.1 Testing apparatus** For the apparatus, as shown in Fig. 1, a support tube equipped with a freely revolving clamp for suspension, and a tensile strength measuring instrument are used.

If no question arises in judgement, a simple type push-pull gauge may be used. In this case, pulling is made at the same speed as in the case of doing with bare hands.

**6.1.2 Test sample** The heat-sealed flexible packaging bag on the market is used in a state as it is.

**6.1.3 Procedure** As shown in Fig. 1, clamp the heat-sealed flexible packaging bag at one side of its tearing position with the free revolving clamp and clamp the other side of the tearing position with the clamp not fixed and tear the packaging bag by 20 mm along the opening line in a perpendicular direction thereto at a speed of 500 mm/min by means of the string attached to the latter clamp and read the maximum tearing force at that time. In case of the bag used by completely opening, pull until completely torn off.



**Fig. 1 Testing apparatus for tearing heat-sealed flexible packaging bag**

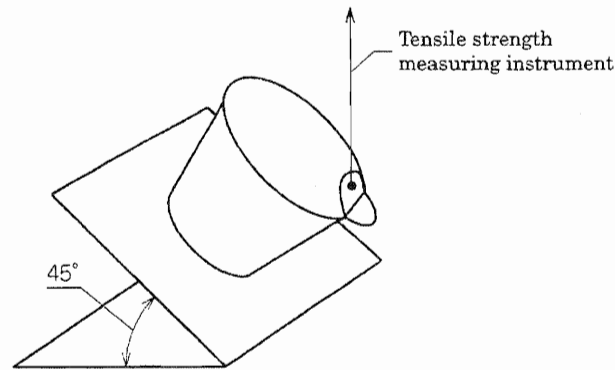
## 6.2 Heat-sealed semi-rigid receptacle

**6.2.1 Testing apparatus** For the apparatus, as shown in Fig. 2, a support table inclined by  $45^\circ$  and a tensile strength measuring instrument are used.

If no question arises in judgement, a simple type push-pull gauge may be used. In this case, pulling is made at the same speed as in the case of doing with bare hands.

**6.2.2 Test sample** The heat-sealed semi-rigid receptacle on the market is used in a state as it is.

**6.2.3 Procedure** Incline the heat sealing semi-rigid receptacle by  $45^\circ$  to fix on the support table with its tongue lowered using a jig or the hands, open the upper part of the tongue of the receptacle to be put between the clamps, open the receptacle by pulling right upward at a speed of 500 mm/min and read the maximum tensile strength at that time.



**Fig. 2 Tensile testing apparatus for heat-sealed semi-rigid receptacle**

## 6.3 Screw top receptacle

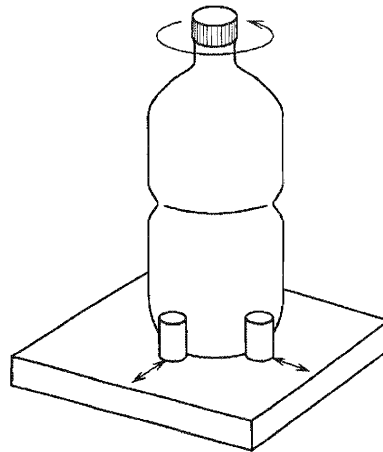
**6.3.1 Testing apparatus** For the apparatus, a stopper-opening torque measuring instrument is used as shown in Fig. 3.

**6.3.2 Test sample** PET bottle and glass receptacle, for example, with screw top on the market are used in a state as they are.

**6.3.3 Procedure** Fix the test sample on the support table of stopper-opening torque measuring instrument, grasp the screw top with the fingers, turn slowly anticlockwise and read the torque at the time when the screw top has turned.

When turning the screw top, grasp it with just enough force to turn without a slippage and keep from applying an unnecessarily strong power.





**Fig. 3 Torque testing apparatus for screw top receptacle**

#### **6.4 Pull-tab receptacle**

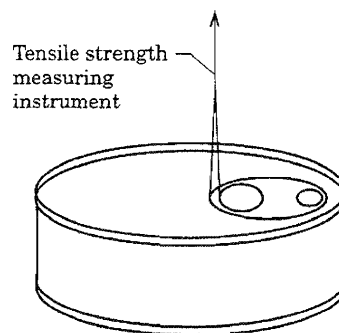
**6.4.1 Testing apparatus** For the apparatus, tensile strength measuring instrument is used.

If no question arises in judgement, a simple type push-pull gauge may be used. In this case, it shall be pulled at the same speed as at the time of opening with the bare hands.

**6.4.2 Test sample** The pull-tab receptacle on the market is used in a state as it is.

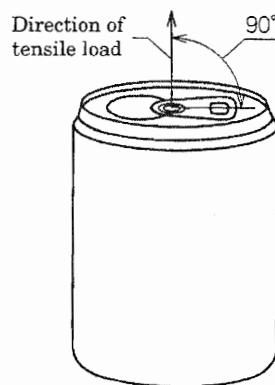
**6.4.3 Procedure** Fix horizontally a pull-tab receptacle using a jig or the hand, open by pulling the finger ring distant from the edge on the tab at a speed of 500 mm/min by the following method and read the maximum tensile strength at that time.

- a) **Full-open tab receptacle** Pull the ring of the tab right upward as shown in Fig. 4.



**Fig. 4 Tensile test of full-open tab receptacle**

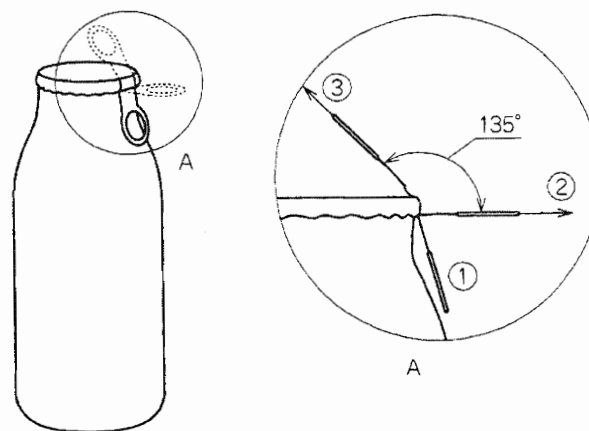
- b) **Stay-on tab receptacle** Raise the tab by  $90^\circ$  with the rivet which fixes the tab on the top end as the center, as shown in Fig. 5.



**Fig. 5 Tensile test of stay-on tab receptacle**

- c) **Receptacle with tab-covered lid**

- 1) Raise the tab by finger until it becomes horizontal, as shown in Fig. 6 (①).
- 2) Pull the tab by the ring in horizontal direction until the weakening line on the side face of the lid breaks (②).
- 3) Raise the tab by  $135^\circ$  with the joint of the tab as the rotation axle and pull it in the raised direction (③).



**Fig. 6 Tensile test of receptacle with tab-covered lid**

## 6.5 Roof type paper carton receptacle

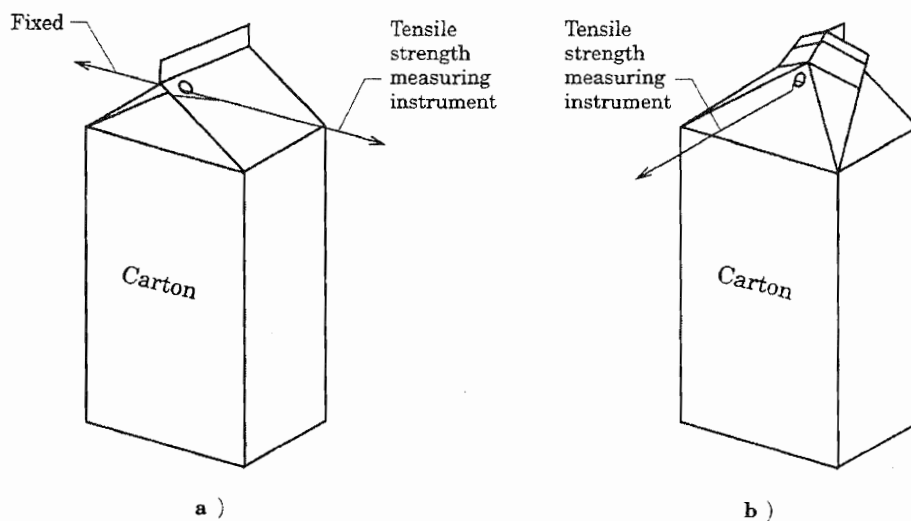
**6.5.1 Testing apparatus** For the apparatus a tensile strength measuring instrument is used.

If no question arises in judgement, a simple type push-pull gauge may be used. In this case, it shall be pulled at the same speed as the speed at the time when opening with the bare hand.

**6.5.2 Test sample** A paper carton of, for example, 500 ml and 1 000 ml with the inclined upper faces where the pack is opened by tearing off.

**6.5.3 Procedure** As shown in Fig. 7 a), fix one roof surface on the upper opening side with a jig or the hand, punch a hole of 4 mm diameter on the point 7 mm distant from both the upper and front ends of the other roof face and reinforce the hole with eyelet. Pass a string through the hole to pull in horizontal direction until the adhered part of the upper pack part is torn off to its middle part and obtain the maximum tearing-off force at that time.

Then, fix the roof-type paper carton using a jig or the hand, open sufficiently the upper opening part of the paper carton to press the wings against the upper part of the roof face as shown in Fig. 7 b), punch a hole of 2 mm diameter at the place 5 mm to 10 mm under the vertex of the triangle, hitch a hook therein to tear open the pouring mouth in horizontal and lateral direction at a speed of 200 mm/min until it opens by 10 mm and obtain the maximum tearing off force at that time.



**Fig. 7 Tearing-off test of roof-type paper carton**

**7 Rounding-off of test value** The numerical values are rounded off in accordance with JIS Z 8401.

**8 Report** The following particulars shall be described in the test report.

- a) Name, classification, shape and dimensions of bag and receptacle
- b) Composition and thickness of material<sup>(1)</sup>
- c) Name of material or similar material contained in the package and receptacle tested
- d) Gross mass or net mass
- e) Number of samples
- f) Date of test
- g) Test condition

h) Maximum opening force (N)

i) Other matters to be noted

Note <sup>(1)</sup> The expression of the dimensions of bags and receptacles shall be in the order of width, length (diameter for circular receptacles) and thickness (height). In this case, the internal dimensions shall be used.

Errata for JIS (English edition) are printed in *Standardization Journal*, published monthly by the Japanese Standards Association, and also provided to subscribers of JIS (English edition) in *Monthly Information*.

Errata will be provided upon request, please contact:  
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